

## CLAIMS

1. A vehicle seat moving apparatus for moving a seat main body between an interior position of a vehicle cabin and an exterior position of the vehicle cabin that is positioned below the interior position, comprising:

a slide base provided to a vehicle floor side so as to be horizontally movable between a retreated position and an advanced position;

a driving device for moving the slide base;

a seat raising/lowering arm that supports the seat main body at one end and is vertically rotatably attached to the slide base via a rotation fulcrum at the other end; and

an ascent/descent guide member that is provided to the vehicle floor side and is adapted to guide the seat raising/lowering arm such that it is vertically rotated as the slide base moves,

wherein the seat raising/lowering arm is provided with a supported portion and the ascent/descent guide member is provided with an inclined guide surface that is gradually lowered toward an exterior of the vehicle cabin, and wherein as the slide base moves, the supported portion is moved along the inclined guide surface so that the seat raising/lowering arm is vertically tilted while a distance between the rotation fulcrum and the supported portion is maintained at a fixed interval.

2. The vehicle seat moving apparatus according to claim 1, wherein the supported portion is disposed in the vicinity of the rotation fulcrum at the other end with respect to the slide base.

3. The vehicle seat moving apparatus according to claim 1, wherein the ascent/descent guide member has a horizontal guide surface on which the supported portion horizontally moves when the slide base is moved from the advanced position to the retreated position.

4. The vehicle seat moving apparatus according to claim 1, wherein when the slide base moves between the retreated position and the advanced position, the seat raising/lowering arm moves in an ascent/descent movement region in which it is vertically rotated while it is guided by the ascent/descent guide member and a horizontal movement region which does not involve vertical rotation, wherein the horizontal movement of the seat raising/lowering arm in

the horizontal movement region is performed by supporting a lower surface of the seat raising/lowering arm by means of a horizontal retaining member that can slidably contact the lower surface, and wherein while the seat raising/lowering arm is moving in the horizontal movement region, the horizontal retaining member is in an advanced side than relative to the supported portion.

5. The vehicle seat moving apparatus according to any one of claims 1 to 4, wherein the ascent/descent guide member has a stopper portion which is positioned at an end of the inclined guide surface, so that the stopper portion contacts the supported portion that moves obliquely downwards on the guide surface, thereby restraining further movement of the supported portion.

6. The vehicle seat moving apparatus according to any one of claims 1 to 5, wherein the ascent/descent guide member comprises a cam plate, and wherein the supported portion of the seat raising/lowering arm comprises a roller that rolls on the cam plate.

7. The vehicle seat moving apparatus according to claim 6, wherein the seat raising/lowering arm comprises two plates that are arranged at a predetermined interval and a connecting member that interconnects opposing end portions of the two plates, and wherein the roller is disposed between the two plates.

8. The vehicle seat moving apparatus according to any one of claims 1 to 4, 6 and 7, wherein the driving device for the slide base comprises an electric motor, a screw shaft rotated by the electric motor, and a nut meshing with the screw shaft, and wherein the screw shaft is provided with a stopper member, so that when a relative moving amount of the screw shaft and the nut in an axial direction exceeds a predetermined value, the stopper member contacts the nut, thereby restraining further relative movement.

9. A vehicle seat moving apparatus for moving a seat main body between an interior position of a vehicle cabin and an exterior position of the vehicle cabin that is positioned below the interior position, comprising:

a slide base provided to a vehicle floor side so as to be horizontally movable between a retreated position and an advanced position;

a driving device for moving the slide base;

a seat raising/lowering arm that supports the seat main body at one end and is vertically rotatably attached to the slide base at the other end;

an ascent/descent guide member that is provided to the vehicle floor side and is adapted to guide the seat raising/lowering arm such that it is vertically rotated as the slide base moves; and

a raising/lowering mechanism moving the seat main body between a raised position and a lowered position when the slide base moves between the retracted position and the advanced position so that the seat raising/lowering arm is vertically rotated,

wherein the ascent/descent guide member is arranged so as to be vertically rotatable between an retracted position and an ascent/descent guide position that is positioned below the retracted position, and wherein the ascent/descent guide member is shifted to the retracted position when the seat main body is in the raised position and is shifted to the ascent/descent guide position when the seat main body is moved at least between the raised position and the lowered position.

10. A vehicle seat moving apparatus according to claim 9, wherein the ascent/descent guide member is normally urged toward the retracted position by a spring for retracting, and wherein the ascent/descent guide member is shifted to the ascent/descent guide position when applied with a load of a seat main body side via the seat raising/lowering arm.

11. A vehicle seat moving apparatus according to claim 9 or 10, wherein the ascent/descent guide member comprises a cam plate that is vertically rotatably attached to one end to the rotation base so as to be shiftable between the retracted position and the ascent/descent guide position, and wherein a roller provided to the seat raising/lowering arm rolls on the cam plate.

12. A vehicle seat moving apparatus according to claim 9 or 10, wherein the ascent/descent guide member comprises a first roller that is attached to the rotation base so as to be rotatable at a fixed position, and a second roller that is disposed in a position spaced apart from the first roller at a predetermined distance and is shiftable between the retracted position and the ascent/descent guide position via an arm that is vertically rotatably attached to the rotation base, and wherein the seat raising/lowering arm, when the slide base moves

between the retreated position and the advanced position, is supported by the first roller or the second roller and is switched during the course of the movement from a condition in which it is supported by one of the rollers to a condition in which it is supported by the other of the rollers.

13. A vehicle seat moving apparatus according to claim 1 or 9, wherein a forward end side of a cover member that can be taken up by a take-up device is fixed to a rear portion of the seat main body, wherein the take-up device is attached to the vehicle floor side at a rear side of the seat main body, and wherein the cover member is paid out from the take-up device as the seat main body moves toward the exterior of the vehicle cabin due to the movement of the slide base, so as to cover a range extending along the seat raising/lowering arm and a range extending along the vehicle floor side which ranges are positioned between the seat main body and the take-up device, and to maintain a stretched condition of the cover member in the width direction thereof at a boundary position between both ranges by a stretching means attached to the cover member.

14. A vehicle seat moving apparatus according to claim 13, wherein the stretching means is a reinforcing bar that is attached to the cover member along the width direction thereof at the boundary position between the both ranges.